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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032.062	12/31/2001	Yun Bok Lee	049128-5036	5647
9629	7590	11/15/2006	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			WARREN, MATTHEW E	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 11/15/2006

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10/032,062

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER
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ART UNIT	PAPER
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20061112

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**Commissioner for Patents**

**Information Disclosure Statement**

The information disclosure statement (IDS) submitted on June 2, 2006 was filed after the mailing date of the Final Office Action on February 8, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. A copy of the IDS is attached to this communication.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MEW

November 10, 2006



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/032,062  
Filing Date: December 31, 2001  
Appellant(s): LEE, YUN BOK

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Mary Jane Boswell  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**  
NOV 15 2006  
**GROUP 2800**

This is in response to the appeal brief filed August 21, 2006 appealing from the  
Office action mailed February 8, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The amendment after final rejection filed on May 8, 2006 has been entered.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,271,903	Shin et al.	8-2001
6,177,970 B1	Kim	1-2001
6,388,727 B1	Kim et al.	5-2002
6,072,555	Mizutome et al.	6-2000

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. (US 6,271,903) in view of Kim (US 6, 177,970 B1).

In re claims 1 and 4, Shin et al. shows (figs. 13 and 14) a liquid crystal display device having liquid crystal cells arranged in a matrix comprising a gate line (21) for receiving a scanning signal, a data line (signal line 31) for receiving a data signal, and a

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pixel electrode (29) provided at an intersection of the gate line and the data line to drive a liquid crystal cell. A thin film transistor (T) for responding to the scanning signal is used to switch the data signal into the pixel electrode. A common line (22) is formed laterally adjacent to the pixel electrode along a direction of the gate and data lines. An alignment film (not labeled-layer formed on top of source 27, drain, 28, and pixel electrode 29) is formed on at least a portion of the gate line, the data line and the pixel electrode to determine a primary alignment direction of a liquid crystal (an alignment layer is formed on the substrate to align the liquid crystal molecules-[col. 1, line 45-54 and col. 3, lines 4-12]). The pixel electrode is disposed directly on an insulating layer (24) that serves as the gate insulating layer of the TFT. The alignment film contacts the source and drain electrodes (27 and 28) of the TFT and upper and side surfaces of the pixel electrode. Shin shows all of the elements of the claims except the alignment film contacting the common line and the common line disposed directly on the gate insulating layer. Kim shows (fig. 5) a liquid crystal display device having liquid crystal cells arranged in a matrix type, comprising a common line (310) laterally adjacent to the pixel electrode (810). An alignment film (90) directly contacts upper and side surfaces of the common line and pixel electrode. The common electrode and pixel electrode (40) are formed directly on the gate insulating layer (50). With this configuration, the drive voltage is minimized and the generation of an afterimage is reduced (col. 5, lines 20-24). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the alignment film of Shin by forming the film in

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contact with a common line as taught by Kim to minimize the drive voltage and reduce an afterimage in an LCD device.

In re claims 2, 3, 7, and 8, Kim discloses (col. 48-52) that the alignment film is formed of polyimide resin and had has a thickness of 700 Angstroms. The dielectric constant is inherently 3 because the material of Kim's alignment film is the same as the instant invention.

Claims 5, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. (US 6,271,903) in view of Kim (US 6,177,970 B1) as applied to claims 1 and 4 above, and further in view of Kim et al. (US 6,388,727 B2).

In re claims 5, 19 and 20, Kim '970 already shows (fig. 2) that the pixel electrode (810) and common electrode (310) are formed in the same layer. Shin and Kim '970 do not show that the common electrode is formed of transparent conductive material. Kim et al. '727 teaches (col. 6, lines 47-56) that the common electrode may be formed of a transparent conductive material such as ITO and that the source and drain electrodes are formed of chromium. The material of source and drain electrodes is different from the material of the common electrode. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the pixel and common electrodes of Song and Kim '970 by using a transparent material such as ITO because Kim et al. '727 teaches that such materials are suitable for simplifying LCD devices.

### **(10) Response to Argument**

The Appellant primarily argues that prior art references of Shin et al. and Kim ('970) (referred to as Kim) cannot be combined because (1) the common and pixel electrodes of Shin cannot be modified as suggested by the examiner and that (2) the alignment film of Kim cannot applied directly to the source and drain of Shin as suggested by the examiner. The examiner believes that the inventions of Shin and Kim can be combined and that the references show all of the elements of the claims.

(1) The appellant argues that the common electrode of Shin cannot be modified as suggested by the examiner because such a modification would destroy the capacitive coupling between the common and pixel electrodes and ultimately destroy the operation of the device. The examiner contends that the modification of Shin would not destroy the device. The appellant cites that figures 2, 13, and 14 each show that capacitive coupling is required and such coupling is the result of the common line (22) and pixel (29) electrode being formed in different planes. The appellant makes these assertions without citing any specific teachings from Shin other than the fact that the inventive embodiment of figure 2 shows the same positioning for the common line and pixel electrode as shown in the prior art figures 13 and 14. The examiner only relies on the prior art figures 13 and 14 of Shin for the rejection. In those prior art figures, Shin explains that alignment directions of liquid crystals above the pixel electrode and above the common line are not uniform (col. 3, lines 10-33). This problem ultimately increases light leakage and affects the aperture ratio in the LCD device. In essence, Shin



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recognizes that there is a disadvantage to the pixel and common electrode arrangement of the prior art device (figs. 13 and 14), which ultimately provides its own motivation for the improvement. In this respect, Shin is the perfect base reference for a rejection because Shin explicitly teaches why modification is necessary for the missing elements of the appellants claimed invention.

(2) The appellant argues that the alignment film configuration of Kim cannot properly modify Shin, because Kim requires that the alignment film does not directly contact the source and drain electrodes as recited in the appellant's independent claims 1 and 4. The examiner recognizes that Kim only differs in from the appellant's claimed invention in that the alignment film directly contacts the upper surfaces of the source and drain electrodes. Kim shows (fig. 3D or 5) that the alignment film (90) is formed over the source and drain electrodes (710 and 720) via an insulation film (80). However, Kim does not explicitly teach that the insulation film (80) is required. It is well known in the art of TFT's and LCD's that an insulation film may **optionally** be provided between the alignment layer and the source/drain electrodes. As a teaching reference, permitted by the MPEP 1207.03 (III), Mizutome et al. (US 6,072,55) is cited to show that a display device has an alignment film formed over the electrodes of the device (col. 8, lines 54-64). An insulating film (13a, 13b) may optionally be provided between the alignment film (14a, 14b) and the electrodes of the device (see fig. 8).

As stated in the rejection, Kim was cited to cure the deficiencies Shin by showing that the pixel electrode and common line are disposed directly on the insulating layer

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that serves as the gate insulating layer and that the alignment film directly contacts upper and side surfaces of the common line and pixel electrode. Kim was not relied upon to show that the alignment layer directly contacts the source and drain electrodes, because Shin already shows that limitation. The problems of Shin's invention pertain primarily to the common line and the pixel electrode while the benefit's of Kim's invention primarily pertain to pixel electrode (40) and the common line (310). In column 5, lines 20-24, Kim explains that the alignment film directly contacting the pixel electrodes and common line improves the invention by maintaining the effective voltage applied to the liquid crystal molecules and reducing the occurrence of an afterimage (which is also referred to as light leakage Kim - col. 6, lines 39-47). The improvement of Kim is applicable to the problems of Shin because Kim 's invention involves the liquid crystal molecules. As stated above, Shin also recognizes problems that affect the uniformity of the liquid crystal molecules in various areas of the device which ultimately increases light leakage. At the very least, the portions of Kim pertaining to the alignment film on the common line and pixel electrode can be applied to the deficient areas of Shin without relying on the other portions (the source and drain) since Kim discloses the specific benefits of those relied upon portions. Both references deal with the problems associated with light leakage (aka afterimage) and each one identifies issues and/or solutions pertaining to the forces affecting on the liquid crystal molecules and the common line and pixel electrode configurations. The references have been properly combined and show all of the elements of the claims.

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**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

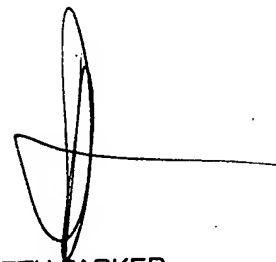
Respectfully submitted,

MEW



Conferees:

Ken Parker, SPE of AU 2815



KENNETH PARKER  
SUPERVISORY PATENT EXAMINER



David Blum, SPE